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(54) **Method and system for providing information to machine users**

(57) A postage metering system is described in which during a transaction between postage metering apparatus and a remote data centre for example for the purpose of refunding a value of credit in the postage metering apparatus, the remote data centre transmits to the postage metering apparatus a message that is unrelated to the transaction. The data centre may transmit a

message selected for a specific postage metering apparatus by storing a plurality of messages and selecting a message from the plurality of messages in dependence upon a profile of the postage metering apparatus or of a user thereof that is determined by an identification of the postage metering apparatus.

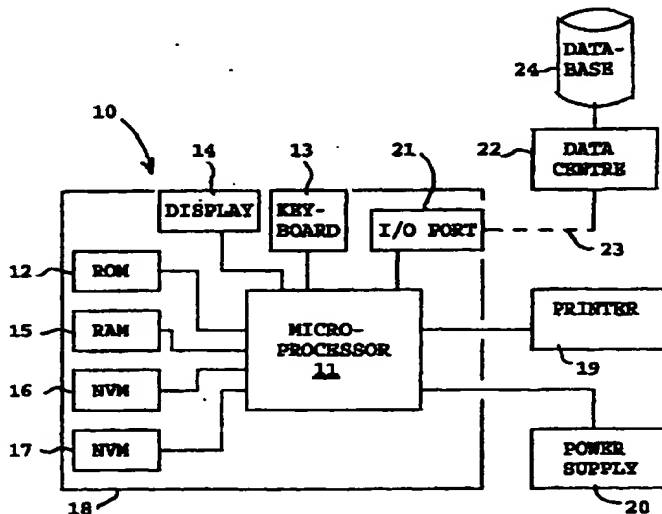


FIGURE 1

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Description

[0001] This invention relates to providing information to mailing machine users and in particular to providing information to users of postage metering apparatus and similar apparatus when the apparatus is placed in communication with a remote data centre.

[0002] According to one aspect of the invention a method of providing information to a user of postage metering apparatus includes the steps of initiating a transaction between the postage metering apparatus and a remotely located data centre; establishing communication between the postage metering apparatus and the data centre; communicating data between the postage metering apparatus and the data centre by means of the established communication and transmitting a message unrelated to the transaction from the data centre to the postage metering apparatus by means of said established communication.

[0003] According to a second aspect of the invention a system for providing information to a user of postage metering apparatus includes postage metering apparatus; a data centre located remotely from said postage metering apparatus; a communication link between said postage metering apparatus and said data centre; said postage metering apparatus being operable in a transaction with the data centre to initiate establishment of communication between the postage metering apparatus and the data centre and to transmit and receive data respectively to and from the data centre, said data relating to said transaction; said data centre being operative in said transaction to transmit to the postage metering apparatus a message unrelated to the transaction; and the postage metering apparatus being operative in said transaction to receive said message and to display said message.

[0004] An embodiment of the invention will now be described by way of example with reference to the drawings in which:-

Figure 1 is a block diagram of a postage meter connected by a communication link to a remote data centre,

Figure 2 is a block diagram of a personal computer including a postage metering secure module connected by a communication link to a remote data centre, and

Figure 3 is a flow chart illustrating steps of a transaction between the postage metering apparatus and the remote centre.

[0005] Referring first to Figure 1 of the drawings, a postage meter 10 includes electronic accounting and control means comprising a micro-processor 11 operating under program routines stored in a read only memory (ROM) 12. A keyboard 13 is provided for input of commands and data by a user and a display 14 is provided to enable display of information to the users of the

postage meter. A random access memory (RAM) 15 is provided for use as a working store for temporary storage of data during operation of the postage meter. Non-volatile duplicated memories 16, 17 are provided for the storage of critical data relating to use of the postage meter and which is required to be retained even when the postage meter is not powered. The microprocessor 11 carries out accounting functions in relation to use of the postage meter for dispensing postage value in respect of amounts of postage charges applicable to handling of the mail items by a postal authority or other carrier. Accounting data relating to use of the postage meter for printing postal indicia, representing postage charges for mail items, and any other critical data to be retained is stored in the non-volatile memories 16, 17. The accounting data includes a value of credit, an accumulated total of value used by the meter in franking mail items, a count of the number of mail items franked by the meter and a count of the number of mail items of a predetermined category for examples those items franked with a postage charge in excess of a predetermined value. The value of credit may be a value of credit available for use by the meter and stored in a descending credit register. The accumulated total value used by the meter is stored in an ascending tote register, the count of items is stored in a piece count register and the count of items franked of the predetermined category is stored in a predetermined items register. Alternatively, if desired, instead of a descending register storing a value of credit available for use by the meter, a total value of credit entered into the meter may be stored in an ascending credit register.

[0006] As is well known in the postage meter art, each of the registers referred to hereinbefore for storing accounting data is replicated in order to enable integrity of the accounting data to be maintained even in the event of a fault or termination of power to the meter during operation of the postage meter. Two replications of each of the registers are provided in each of the memory devices 16, 17. The components of the postage meter are housed in a secure housing 18 to provide security against unauthorised tampering with the components of the postage meter.

[0007] A printer 19 is operated under control of the microprocessor 11 to print postal indicia on mail items, the postal indicia including postal data. The postal data includes at least a value of postage applied to the mail item and usually includes other data, for example date, postage meter identification and identification of postal area in which the postage meter is located. The postal indicia may include other information and may include a digital signature or encrypted information to enable authenticity of the postal indicia to be verified. Where the postage indicium includes a digital signature or encrypted information, the postage meter includes means to generate the digital signature or encrypted information respectively. If the printed postal indicia contain a digital signature or encrypted information to ena-

ble authenticity of the indicia to be verified, the printer 19 may be located externally of the secure housing 18. However if the postal indicia do not contain a digital signature or encrypted information for verification of the indicia the printer 19 is housed within the secure housing 18 to prevent unauthorised operation of the printer 19.

[0008] Power for operation of the postage meter is provided by a power supply 20.

[0009] The postage meter 10 is provided with an input/output port 21 to enable communication via a communication link 23 with a data centre 22 located remotely from the postage meter. The communication link 23 may, for example, be provided by a telephone network but may be provided by any other means capable of transmitting data between the postage meter and the remote data centre.

[0010] As described hereinbefore, the non-volatile memories 16, 17 of the postage meter include a register for storing an amount of credit and a register for storing a total of value that has been used by the postage meter in applying postage charges to mail items. In each transaction by the postage meter to apply postage charge to a mail item, the microprocessor operates under a program routine to check that a sufficient value of credit is available for the current transaction and only if there is sufficient credit, the microprocessor continues under the program routine to carry out accounting functions to reflect the application of postage charge in the current transaction, stores new accounting data in the registers and operates the printer 19 to print the required appropriate postal indicium.

[0011] As operations to apply postage charges in respect of mail items are carried out, the value of credit available for applying postage charges is reduced and periodically the amount of credit stored in the postage meter must be incremented to enable continued operation of the postage meter. Incrementing of the amount of credit stored in the postage meter is effected in a credit resetting transaction by communication with the remote data centre 22 and may, for example, be effected by the methods described and claimed in US patents 4,907,271 and 5,077,792. In the methods described in these patents, the user of the postage meter operates a key to put the postage meter into a credit resetting mode to initiate (step 40 Figure 3) a credit resetting transaction. The postage meter when in the credit resetting mode establishes communication (step 41) between the postage meter and the data centre via the communication link 23. In the course of the communication between the postage meter and the data centre, an identification of the postage meter, accounting information stored in the registers 16, 17 and an amount by which the credit is to be incremented is transmitted (step 42) by the postage meter and received (step 43) by the data centre. The data centre 22 is provided with a database 24 storing data relating to respective postage meters, in particular accounting data and informa-

tion relating to operation of the respective postage meters, the stored data being accessed by postage meter identification. After receiving the information transmitted by the postage meter 10, the data centre uses the postage meter identification to access the database 24 and thereby obtain data relating to the identified postage meter. The data centre then verifies the accounting data received from the postage meter compared with the accounting data stored in the database. If the received data is verified, the data centre completes the transaction (step 48) which includes transmitting a credit reset instruction to the postage meter that is effective to increment the credit available in the postage meter by the requested amount and to cause the postage meter to complete the transaction (step 45). After completion of the transaction, the communication is terminated (step 46).

[0012] As described hereinbefore, the postage meter establishes communication with the data centre in a credit resetting transaction when the user places the postage meter in a credit resetting mode. However it is to be understood that the postage meter may be arranged to establish communication with the data centre for transactions other than credit resetting.

[0013] The database 24 is also utilised to store messages which it is desired to disseminate to users of postage meters. The messages are unrelated to the transaction being carried out between the postage meter and the data centre and may relate to announcements of postage meter products or services that are provided or are to be provided in the future by the supplier of the remote postage meter credit resetting service or by another party, for example the other party may be a postal authority. The messages may comprise advertising material or may relate to or include other information to be disseminated to postage meter users. The messages may comprise text or graphical information or a combination of text and graphical information. Generally the message may be passive and intended merely to be viewed by the postage meter user. However the messages may form a part of an interactive procedure in which event the messages may incorporate action buttons or items of a menu that can be selected to initiate a dialogue between the postage meter and the data centre. The dialogue between the postage meter and the data centre may, for example, be utilised for selection of options for service or for software upgrades.

[0014] As described hereinbefore the messages may be stored in the database 24 and accessed when required to be disseminated to a postage meter user. Alternatively, and particularly where the message originates from a party other than the party operating the data centre 22, the message may be input to the data centre 22 from a computer centre (not shown) operated by the other party via a communication link (not shown).

[0015] After the user of the postage meter places the postage meter into a mode in which the postage

meter establishes communication for a transaction between the postage meter and the data centre, the data centre reads out from the database 24 a message which is to be disseminated and transmits (step 47) the message to the postage meter. Upon receipt (step 48) of the message, the postage meter displays (step 49) the message on the display 14 of the postage meter to be viewed by the user of the postage meter. While the message may be stored in the database and read therefrom, if the message originates from another party the message may not be stored in the database and may be accessed from elsewhere either in the data centre 22 or from the other party's computer centre.

[0016] Thus each time that the postage meter is placed in a mode in which the postage meter establishes communication in a transaction with the data centre, a message to be disseminated by the data centre to postage meter users is transmitted to the postage meter and displayed so as to be viewed by the user. It will be appreciated that, since operation of the postage meters requires periodic communication of the postage meters with the data centre at least for the purpose of effecting transactions to reset the credit values in the postage meters, the users of postage meters will automatically and periodically receive any messages that are desired to be disseminated to the users.

[0017] The messages transmitted by the data centre may be the same in respect of each postage meter and in respect of each communication of a postage meter with the data centre. However if desired the messages may be personalised according to a profile of a user. Thus, for example, a first message may be transmitted to users of postage meters handling relatively small volumes of mail and a second different message may be transmitted to users of postage meters handling relatively large volumes of mail. Also when a message has been transmitted to a postage meter in one transaction involving communication with the data centre, a different message may be transmitted in the next succeeding transaction of that postage meter involving communication with the data centre.

[0018] The postage meter identification received by the data centre from a postage meter is utilised to identify a profile of the user and, in accordance with the identified profile, one of a plurality of messages stored by the data centre is selected (step 50) and transmitted to the postage meter. The data centre may store an indication whereby, during a current transaction involving communication between a postage meter and the data centre, the data centre can determine if a specific message has already been transmitted to that postage meter in a preceding transaction. If a specific message has already been transmitted, the data centre may be operated to send another message, for example a modification of the specific message, or to not transmit a message in this current transaction.

[0019] It will be appreciated that the transmission of the message (step 47) by the data centre to the postage

meter may be effected at any time while communication exists between the postage meter and the data centre. However when the message is selected (step 50) in dependence upon the meter identification, the transmission of the message occurs after receipt of the meter identification (step 43). The message may be displayed by the display while the transaction is being carried out and may remain displayed until or after completion of the transaction. Alternatively the message may be displayed after completion of the transaction. If the message is displayed after completion of the transaction, display of the message may be terminated after a predetermined time interval or when the postage meter is switched out of the transaction mode into postage metering mode.

[0020] Referring now to Figure 2, in an alternative embodiment of the invention, postage metering apparatus includes a secure postage metering module 30 connected to a personal computer 31. The postage metering module 30 is substantially the same as the postage meter of Figure 1 but lacks a keyboard and display. Components of the module corresponding to the components of the postage meter of Figure 1 have the same reference numerals. Input of information to the module 30 is effected by the personal computer 31. A keyboard 32 and display 33 are connected to the personal computer 31 respectively for the input of data, for example amount of postage charge, by a user and for display of information and messages to the user. A printer 34 is connected to and operated by the personal computer. The printer may be a free-standing device or may be a printing device integrated with the secure postage metering module 30.

[0021] In operation, the personal computer is operated under control of a postage metering program routine and inputs postal data consisting of or including amount of postage charge to be applied in respect of a mail item. The postage metering module 30 operates in substantially the same manner as the postage meter 10 to carry out accounting functions in respect of accounting data and then outputs data enabling the personal computer to operate the printer to print a required postage indicium on a mail item.

[0022] In transactions requiring communication between the postage metering module and the data centre 22, the personal computer establishes communication with the data centre via a communication link 23. If the transaction is a credit resetting transaction, data is output from the module 30 to the personal computer and the personal computer transmits the data to the data centre. Similarly information transmitted by the data centre to enable resetting of the credit amount stored in the module is transmitted via the personal computer to the postage metering module 30.

[0023] In accordance with the present invention, in the course of a transaction involving communication between the postage metering module and the data centre as described hereinbefore, the data centre trans-

mits to the personal computer a message to be disseminated to users of postage metering modules. On receipt of the message, the personal computer operates the display to display the message to the user.

[0024] Hereinbefore, with reference to Figure 1, a postage meter 10 has been described as communicating directly with a data centre 22 via communication link 23 and messages received from the data centre are displayed on a display device 14 of the postage meter 10. Also, with reference to Figure 2, a personal computer 31 provided with a secure postage metering module 30 has been described as communicating with a data centre 22 and messages received by the personal computer from the data centre are displayed on the display monitor 33 of the personal computer. If desired, the postage meter 10 of Figure 1 may be connected to a personal computer and communications between the postage meter and the data centre are effected via the personal computer and communication link 23. Messages transmitted by the data centre are received by the personal computer and may be displayed on a display monitor of the personal computer. In addition, or alternatively, the received messages may be displayed on the display 14 of the postage meter 10.

Claims

1. A method of providing information to a user of postage metering apparatus including the steps of initiating a transaction between the postage metering apparatus and a remotely located data centre; establishing communication between the postage metering apparatus and the data centre; communicating data between the postage metering apparatus and the data centre by means of the established communication is characterised by transmitting a message unrelated to the transaction from the data centre to the postage metering apparatus by means of said established communication.
2. A method as claimed in claim 1 including the step of transmitting an identification signal identifying the postage metering apparatus to the data centre and including the steps of the data centre storing a plurality of messages; selecting a message from said plurality of messages in dependence upon the identification of the postage metering apparatus and transmitting the selected message to the postage metering apparatus.
3. A method as claimed in claim 1 or 2 wherein the transaction relates to refunding the postage metering apparatus with postage value for use in dispensing postage charges.
4. A system for providing information to a user of postage metering apparatus including postage metering apparatus (10:30); a data centre (22) located

remotely from said postage metering apparatus; a communication link (23) between said postage metering apparatus and said data centre; said postage metering apparatus being operable in a transaction with the data centre to initiate establishment of communication between the postage metering apparatus and the data centre and to transmit and receive data respectively to and from the data centre, said data relating to said transaction; characterised in that said data centre (22) is operative in said transaction to transmit to the postage metering apparatus (10: 30) a message unrelated to the transaction and in that the postage metering apparatus (10: 30) is operative in said transaction to receive said message and to display said message.

5. A system as claimed in claim 4 wherein during communication between the postage metering apparatus and the remote data centre the postage metering apparatus transmits to the remote data centre an identification signal identifying the postage metering apparatus and wherein the postage metering apparatus stores a plurality of messages; the data centre is responsive to the identification signal to select a message from said plurality of stored messages in dependence upon the identification of the postage metering apparatus and to transmit the selected message to the postage metering apparatus.
6. A system as claimed in claim 4 or 5 wherein the message includes means to enable interactive communication between the postage metering apparatus and the data centre.
7. A system as claimed in claim 6 wherein the means to enable the interactive communication includes buttons displayed by the postage metering apparatus for selective operation to enable a selected interactive communication between the postage metering apparatus and the remote data centre.
8. A system as claimed in any one of claims 4 to 7 wherein the transaction includes refunding of a credit value in said postage metering apparatus.
9. A system as claimed in wherein the postage metering apparatus includes a secure postage metering module (30) connected to a computer operable by a user to control operation of the postage metering module.

